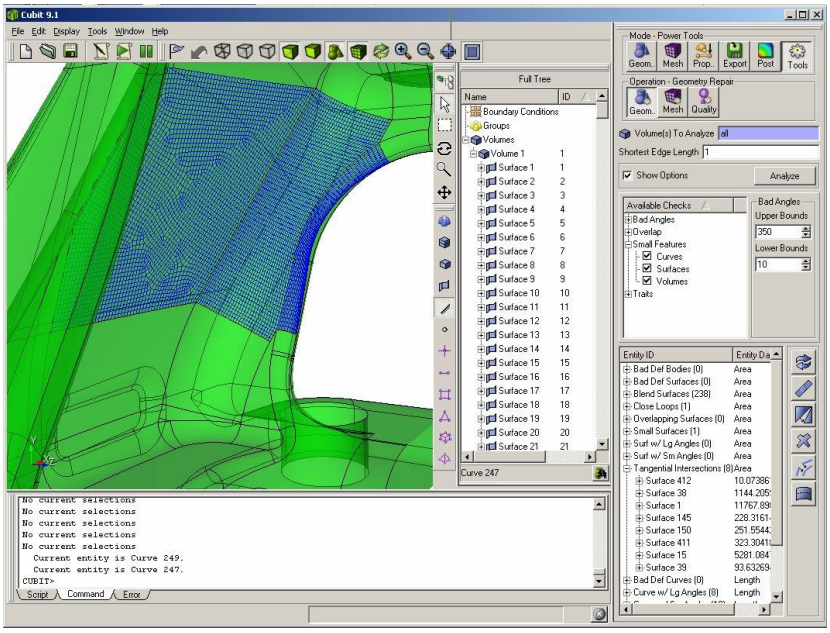
CUBIT measures significant decrease in time for geometric editing operations

A recent study designed to measure the effectiveness of CUBIT's new graphical user interface and geometry tools has demonstrated up to a forty percent decrease in time for geometric editing operations. The study involved complex CAD models requiring detailed geometric decomposition and editing operations. Geometry preparation has been earmarked by the Design through Analysis Roadmap Team (DART) as among the most time consuming aspects of the design through analysis process. As a result, the CUBIT team has devoted significant resources into improving its usability and tools for geometry management and cleanup. CUBIT's recent 9.0 and 9.1 releases include a new cross-platform graphical user interface. A significant feature of the new user interface is the Geometry Power Tool. The Geometry Power Tool permits the user to analyze a CAD model according to a series of diagnostic tools. These tools will detect potential problems and areas of concern that a user should examine and/or modify prior to attempting to mesh. Presented with the list of potential problems, a variety of tools for graphically examining and modifying the problem geometry is made available through a convenient GUI panel.



In order to measure the impact of the new Geometry Power Tool and CUBIT's new Graphical User Interface, a series of test models were selected. The same user was tasked with developing an all-hexahedral mesh of the models in CUBIT's 8.0 version, which provided only the old command line interface, and again in CUBIT 9.0, which provided the new GUI tools. In an attempt to factor out the user's time to learn how to mesh the parts, the user first practiced meshing the part to gain experience with the tools and the models in both systems. Time to mesh was measured based only on the speed of using these tools. In all cases, the new tools helped to decrease the time to prepare the geometry for meshing by between 10 and 40 percent. (SAND 2004-6523P)

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